

ABSTRACT OF THE DISCLOSURE

A detection device comprised of a hybrid nucleic acid assembly. The device further comprises a nucleic acid polymer, a first nanoparticle conjugated to the nucleic acid polymer, a second nanoparticle conjugated with the nucleic acid polymer, a means for introducing  
5 energy into the first nanoparticle, means for detecting energy from the second nanoparticle, and means for determining a physical property of the nucleic acid polymer, wherein the means of introducing energy into the first nanoparticle is a source of mechanical energy.